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THE UNIVERSITY OF ALBERTA

THE EFFECT OF FEEDBACK ON AWARENESS OF ILLUSORY CORRELATION

by

IVY YEE-MAN LAU

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1988

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled THE EFFECT OF FEEDBACK ON AWARENESS OF ILLUSORY CORRELATION submitted by IVY YEE-MAN LAU in partial fulfilment of the requirements for the degree of MASTER OF ARTS.

Curt Hoffman

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Date 1st Sept., 1988

Abstract

The goal of the present study was to examine the effect of feedback indicating that an erroneous judgment has been made on the accuracy of people's subsequent verbal reports of their own mental processes. Participants were asked to assess the correlation, if any, between types of Rorschach repsonses and the presence of three clinical problems, namely, suicidal tendencies, sexual dysfunction, and obesity, among 48 clients. The experimental material, which included responses semantically associated with the stereotypes of the three clinical problems, was constructed so that there was in fact no correlation between type of response and type of clinical problem. Seventy-three percent of participants nonetheless observed an "illusory correlation." Some of these participants were then told that there was actually no correlation between clients' problems and the types of repsonses they gave. Another group of participants were told about the lack of correlation and were also led to believe that they would later be performing a second correlation-estimation task. The rest of the participants did not receive any information about the lack of correlation or the possibility of a second task. All participants then received a questionnaire asking them to describe the mental process(es) they went through during the correlation-estimation task. The possible effects of feedback on the verbal reports of "observers" was examined in a separate study. Each of a group of observers received a detailed description of the actor study as well as the correlation estimates made by one of the actors, and was then asked to guess at the probable mental processes used by the actor. Results showed that actors who received feedback gave more accurate reports of the mental processes that led to their erroneous covariation judgments than did their no-feedback counterparts, displaying significantly more awareness of the existence of bias in, and the influence of stereotypes on, these processes. On the other hand, feedback information did not cause observers to give more accurate "reports" of the processes involved in erroneous covariation judgments. This study thus provides strong evidence that feedback indicating that an erroneous judgment has been made can lead people to give more accurate verbal reports of their own (biased) mental processes.

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I. Introduction

Most of us have experienced, at one time or another, the hindsight "I shouldn't have...." Such awareness of faulty actions or cognitions usually comes after we learn that we have not obtained some desirable goal, such as the correct answer to a problem. However, are we also (or can we become) aware of the mental processes that led to the erroneous result?

Many people believe that we have unique insight into the mental processes that are responsible for our own judgments, emotions, and behaviors. However, some psychologists are convinced otherwise. Nisbett and Wilson (1977) argue that people have little or no direct access to the workings of their minds and therefore are usually not aware of how stimuli (whether internal or external) influence their mental activities. Consequently, people's reports about their own mental activities are not always accurate. In addition, Nisbett and Wilson propose that people's occasional accurate reports usually are no more accurate than those given by observers who know only about the public features of the situations and the actors' responses. They further suggest that when reporting on the mental processes in question, both actors and observers rely on a priori or ad hoc causal theories, i.e., implicitly or explicitly shared theories about relations between stimuli and responses. For example, Joe is offered a raise in salary, therefore, he must be very pleased. According to Nisbett and Wilson, accurate reports of mental activities only reflect accurate applications of a priori theories, not direct access to cognitive processes.

The arguments of Nisbett and Wilson (1977) and the experimental paradigm they used to examine the accuracy of verbal reports of mental activities were based on self-perception theory (Bem, 1967). This theory states that actors, like observers, infer the cause of their behavior by observing external factors such as the behavior and the situation in which it occurs. Several of the studies by Nisbett and Wilson and their colleagues utilized a version of the "interpersonal replication" paradigm proposed by Bem, in which actors' reports of factors that influenced their responses are compared with observers' guesses about the factors. In some cases, the observers were participants in control conditions who did not receive the critical manipulations. For example, in a study reported in Nisbett and Wilson (1977),

participants in the experimental conditions vie wed a film and were distracted either by poor focus or loud noise. Participants in the contro l condition viewed the film with no distractions. All participants then rated their reactions to t he film. Participants in the loud noise condition reported that the noise had distracted them fr om the film even though the results showed no such influence. In other cases, observers were people who did not participate in the experiments at all but who simply read abbrev iated protocols describing one or more experimental conditions and then made predic tions of how the actors would have responded. For example, Nisbett and Bellows (1977) aske d actor participants to judge a fictitious applicant for a clinical position based on a nu mber of target attributes (e.g., academic credentials). and to report how each attribute influenced their judgments. Observer participants were asked what the influence of knowing the target attributes would be on their judgment of a person. Results showed that ac tors' reports were inaccurate and similar to those given by observers. Although observers played different roles in different studies, the rationale underlying the various experimental designs is the same. If actors have direct access to their mental activities, their reports should be more accurate than those of observers. On the other hand, if actors have no direct access to their mental activities, and instead both actors and observers rely on actors' behaviors and culturally shared causal theories when explaining the behaviors in question, then ther e is no reason to expect actors to be more accurate than observers.

Results of research on interpersonal pe rception (e.g., Hepburn & Locksley, 1983; Nisbett & Wilson, 1977; Wetzel, Wilson, & Ko rt, 1981), self-perception of helpfulness and interest in game activities (Wilson, Hull, & Jol hnson, 1981), and self-reported influences on mood (Wilson, Laser, & Stone, 1982) have sh own that actors give relatively inaccurate verbal reports that are comparable to those given by observers. Other studies, however, have yielded different results. For example, actors were mo re accurate than observers when reporting factors influencing their choice of college (Wri ght & Rip, 1981) and their judgments of people's honesty and intelligence (Kraut & Lew wis, 1980). In a review of the various related studies since the initial article by Nisbett and W Wilson (1977), Wilson and Stone (1985)

averaged the results across these studies and concluded that actors are generally no more accurate than observers. They propose that the occasional advantage in accuracy that actors have over observers can be attributed to actors' access to covariation information on their own behavior. The extent to which actors can be more accurate than observers depends on how easily the necessary covariation information can be derived. More recent research, however, suggests that actors' reports of influential situational stimuli can be substantially more accurate than observers' guesses and also that actors' reports at least partly rely on some form of privileged information that extends beyond mere observation of their behaviors across situations. Gavanski and Hoffman (1987) asked actor participants to examine a number of target persons' profiles and to judge how much they would like each person. Participants were then asked to estimate how each of several target factors had influenced their liking judgments. Each of a group of observers examined the profiles and the liking ratings made by one actor and used this covariation information to estimate how the target factors had influenced the actor's liking judgments. Although covariation information significantly increased the accuracy of the causal reports of this group of observers relative to another group of observers who did not have access to such information, it contributed less importantly to the actors' reports. Moreover, actors remained more accurate than observers after the researchers controlled for the contribution of both covariation information and shared a priori theories. Findings of this and the other aforementioned studies constitute substantial evidence for actors' utilization of privileged knowledge when giving causal reports. A logical question to ask next is, what factors mediate the use of privileged knowledge and thus the accuracy of causal self-reports?

One of the possible reasons why privileged information that can enhance verbal report accuracy is not used more frequently than is the case in studies by Nisbett and Wilson and their colleagues concerns the nature of our cognitive functioning. We are constantly bombarded by numerous stimuli, some of which are more relevant to our well-being than others. Similarly, some of the mental processes involved in the understanding, integration, and evaluation of external stimuli are more important than others. Given people's limited

cognitive resources (Triesman, 1960), selective, rather than continuous, attention to ongoing mental processes is most conducive to effective cognitive processing. Constant introspection of trivial mental events may tax our limited cognitive resources too heavily. For example, it is more functional in an examination to pay less attention to how we evaluate the set-up of the examination hall and more attention to how we deal with the exam itself. When cognitive processes are not well attended to, they are difficult to recall at a later time (Ericsson & Simon, 1980). After the exam we may not remember why we liked or disliked the examination hall, but we may recall how we interpreted the questions on the exam. It is also functional to attend more to novel, rather than routine, tasks. When people learn to type or ride a bicycle, it is common for them to attend to every activity involved. Such conscious effort of continuously attending to their activities may make the learning task quite tiring, but conscious attending also makes it possible to report on what is done and why. However, when people have mastered the skills, reports on their activities may reduce to "it's all in the fingers" in the case of typing or "I just ride" in the case of riding a bicycle. The activities have became automatic. When the same event is processed on a regular basis, it saves cognitive resources to attend to the process only the first few times and on later occasions to use the resources to process unfamiliar and potentially important events in the environment. Consequently, relatively fewer cognitive resources are allocated to routine processings which then tend to be forgotten easily.

One type of routinized processing is the use of "schemas." Schemas are units of knowledge that organize much of what we know about general categories in our environment (Anderson, 1980). These categories include objects (e.g., birds, tables), events (e.g., going to a restaurant, visiting a dentist), and types of people (e.g., sports fans, psychological patients). Although the exact nature of schemas is not yet clear, considerable knowledge of their properties has been gathered. Schemas enable us to deal with enormous information-processing demands in our environment with our limited cognitive resources. Their use helps us to recognize objects, comprehend events, and make judgments. Although the use of schemas is a powerful way to process information, it also leads to systematic

errors. When trying to recall events for which we have a schema, such as going to a restaurant or fighting a war, memory can be distorted in the direction of the general schema. We may omit or change facts that are incongruent with the schema and import new congruent information (e.g., Bower, Black, & Turner, 1979; Bartlett, 1932). Schemas for social groups can also lead to biased evaluations or impressions. Not all members of a particular social group conform to the stereotype of that group. Moreover, the stereotype we have may not be accurate. Despite the low validity of some of them, stereotypes still exert considerable influence when we process social information. Stereotypes can influence our interpretation of others' behaviors. Once we label people as members of a group we tend to interpret their behaviors according to their group membership. For example, ambiguous behaviors performed by blacks are perceived as more aggressive than the same behaviors performed by whites (Sagar & Schofield, 1980). In addition, attention and memory are also suceptible to the influence of stereotypes (e.g., Cohen, 1981; Swann & Read, 1981).

The use of stereotypes, expectations, and preconceptions can also explain the erroneous observation of a correlation between two variables when none actually exists, i.e., "illusory correlation." Chapman and Chapman (1969) showed participants contrived Rorschach responses supposedly given by homosexual, paranoid, low self-esteem, and depressive patients. Some of the responses were representative of the homosexual stereotype (e.g., feminine clothing or sexual confusion). The stimuli were constructed so that there was no actual correlation between type of response and type of clinical problem. However, when asked if there was any type of response more often given by homosexuals, participants consistently reported the stereotypic responses. Illusory correlation is a robust effect: In another experiment reported in the same article, participants reported that homosexuals more often gave stereotypic responses even when certain non-stereotypic responses were actually correlated with homosexuality.

To estimate the correlation between clinical problems and types of responses "properly," participants would have had to recall most of the responses given by the patients, attend to common characteristics among responses and derive appropriate categories from

them, and then decide if the patients gave more responses in certain categories. Although this method can achieve the most accurate estimate, it was probably not used by the participants. Participants probably could not recall all the responses given by the patients. Furthermore, the various procedures place very heavy demands on cognitive resources. Not only would participants have to hold the recalled responses in active memory, they would also have to decide what categories to use, categorize the responses, estimate the number of responses in each category, and then decide if there was a correlation. Consequently, participants may have been unable to follow the "proper" procedures and may have based their answers partly on their stereotype of homosexuals. The influence of this stereotype may have been at work even before participants made their correlation estimate. When reading the contrived Rorschach responses, participants may have focused their attention primarily on stereotypic responses and encoded more of such responses than of non-stereotypic ones. Stereotypes may have influenced participants again during the correlation-estimation task. Prior to recalling patients' responses, participants may have derived from their previous knowledge a few categories they believed distinguish homosexuals from non-homosexuals, to which they assigned recalled responses. These categories most likely would be those representative of the stereotype of homosexuals. When recalling the responses given by homosexual patients, their memory may have been biased in the direction of the stereotype. As a result, they would recall more stereotypic than non-stereotypic responses and would then conclude that the former were more often given by homosexual patients. Furthermore, besides attention- or memory-based biases, the covariation-judgment process itself may also be biased in the direction of the relevant stereotype, for example, in the form of inferences that a certain type of people ought to respond in a certain way. If participants were to report on the mental processes leading to their erroneous covariation judgments, indications of awareness of the influence of stereotypes, expectations, and preconceptions should therefore be considered a form of accurate self-report.

Even though routinized processes such as those underlying illusory correlation are often not well attended to and consequently forgotten easily, they may not always be

neglected. Given that cognitive processing functions on an economical basis, it is beneficial to avoid making future mistakes by allocating more cognitive resources to routine processing when there is feedback indicating errors in these processes. Provided that such feedback is given shortly after people have finished a task, so that the mental processes involved have not already been forgotten and it is still functional to refocus attention, people may then be able to become more aware of the mental processes and therefore be able to report such processes more accurately than they would otherwise.

The primary goal of the present study was to examine the effect of feedback indicating that an erroneous judgment has been made on the accuracy of people's subsequent verbal reports of their own mental processes. Participants in the study were first asked to assess the correlation, if any, between types of Rorschach responses and the presence of three clinical problems, namely suicidal tendencies, sexual dysfunction, and obesity. The experimental material, which included responses semantically associated with the stereotypes of the three clinical problems, was constructed so that there was no correlation between type of response and type of clinical problem. After participants had finished estimating correlations, but before reporting on their cognitive processes, some participants received feedback indicating that there was actually no correlation between clients' problems and the types of responses they gave. Other participants did not receive any feedback about the lack of correlation. All participants then received a questionnaire asking them to describe their mental processes during the correlation estimation task.

Half of the participants who received feedback were also led to believe that they would later be performing a second correlation-estimation task. This condition was included because of the possibility that feedback alone might not be sufficient to motivate accurate introspection. If people expect to perform similar tasks in the future, however, presumably it would be important for them to know how and why they went wrong the first time, so as to be able to improve their performance on subsequent occasions. However, we did not advance any formal prediction regarding the effect of the second-task manipulation.

A second study was carried out to examine the possible effects of feedback on the verbal reports of observers. Each observer was given a detailed description of the actor study, as well as the correlation estimates made by one of the actors. They were then asked to guess at the probable mental processes or procedures used by the actor when estimating the correlations.

Unlike most previous studies on introspection, the focus of the present study is on participants' awareness of their mental processes rather than on their ability to report the effect or lack of effect of some independent variable. It was hypothesized that people who are given feedback indicating that they made an incorrect judgment would subsequently give a more accurate report of the cognitive processes leading to that judgment than would people who do not receive such feedback.

II. Method

Development of the Stimulus Materials

A preliminary study was conducted to collect information on the symbolic associations between specific Rorschach responses exemplifying the categories of sex, death, and food and the psychological problems of sexual dysfunction, suicidal tendencies, and chronic overweight disorder. Twenty-six Rorschach responses for each category were compiled and randomly ordered. Thirty male and thirty female introductory psychology students were asked to rate the strength of the symbolic association between each of the 78 responses and each of the three clinical problems on a 9-point scale with 0 labeled "no association at all," 4 labeled "moderately strong association," and 8 labeled "extremely strong association." Responses with mean associative ratings of "4" or above in relation to the corresponding clinical problem (i.e., sexual dysfunction for the sex responses, suicidal tendencies for the death responses, and overweight disorder for the food responses) and mean ratings of less than "4" in relation to the other two problems were eligible for use as stimulus material. Using this criterion, twenty-four responses from each category were selected. An additional set of 24 responses exemplifying four neutral categories (geography, furniture, plants, and sports), which were categories found to be minimally associated with the three clinical problems in a previous test, were compiled for use as "filler" responses.

Actor Study

Design and participants. The experimental design was between-subjects. There were three conditions, which will be called the "No-feedback," "Feedback," and "Feedback/second-task" conditions. Twenty-seven male and thirty-six female introductory psychology students, who participated in partial fulfillment of a course requirement, comprised the final sample. Nine males and twelve females were randomly assigned to each of the three conditions.

Material. The experimental material consisted of three versions of a contrived inkblot booklet. Each participant received only one version of the booklet and was told that the booklet contained responses given by 48 male clients, each with one of three psychological

problems: sexual dysfunction, suicidal tendencies, or chronic overweight disorder. Each of the clients was identified by a number and the particular problem he was experiencing. The identifying information was followed by two responses supposedly selected from the client's profile, together with the particular inkblots to which the responses were given. In cases where a client supposedly responded to part of the blot, rather than to the whole blot, the part to which the client indicated he was responding was circled.

Special care was taken to ensure that no one type of response correlated with any clinical problem. Recall that 24 sex, 24 death, 24 food, and 24 neutral Rorschach responses were compiled during pretesting. Responses in each category were randomly divided into three groups of 8. One group from each of the four categories were combined to form three sets of 32 responses. Within each set, responses were paired across categories in a counterbalanced manner so that no responses from the same category were paired together and each category appeared as the first response in a pair four times. To develop three versions of the stimulus booklet, each set was assigned to represent the responses of each clinical group in one of the three booklet versions. For example, set A represented the responses of overweight clients in version 1 of the booklet, the responses of suicidal clients in version 2, and the responses of sexual dysfunction clients in version 3. A similar procedure was followed for all three sets of responses. Because each set contained eight responses from all four categories, there were always eight responses of each type associated with each clinical problem. Mean symbolic-association ratings for the responses associated with each clinical problem were calculated for the three booklets, and were found to be highly comparable for the same problem across booklets. The study was run in groups of three and the booklets were randomly assigned to participants in each session, so that each version was used by one participant in each experimental condition (except in cases where not all of the scheduled participants showed up).

Procedure. Participants were told that the study concerned the factors involved in teaching clinical-psychology students to understand and interpret Rorschach test responses. The Rorschach was briefly described as a clinical test in which the client is shown a series of

ten inkblots and is asked to verbalize what each of the blots looks like. Participants then received the booklet of inkblots and responses, which were described as having been taken from various textbooks on Rorschach inkblot interpretation. Participants were asked to read through the booklet carefully and pay very close attention to the kinds of responses given by clients with each of the three problems. To ensure that everyone proceeded at the same pace, a tape-recorded voice instructed participants to turn each page at 15-second intervals. Participants then received a questionnaire containing the following three questions:

> 1. Was there any general kind of response that was given more often (even slightly more often) by the men suffering from sexual dysfunction than by the men with the other two problems? In other words, did this group of men tend to see any certain kind of thing in the inkblots more frequently than the other two groups?
> Yes
> No
> If you answered "yes," name that kind of thing, and give one example of that kind of thing:
> Kind of thing:
> Example:
>
> 2. Was there any general kind of response that was given more often (even slightly more often) by the men with suicidal tendencies than by the men with the other two problems? In other words, did this group of men tend to see any certain kind of thing in the inkblots more frequently than the other two groups?
> Yes
> No
> If you answered "yes," name that kind of thing, and give one example of that kind of thing:
> Kind of thing:
> Example:
>
> 3. Was there any general kind of response that was given more often (even slightly more often) by the men with chronic overweight disorder than by the men with the other two problems? In other words, did this group of men tend to see any certain kind of thing in the inkblots more frequently than the other two groups?
> Yes
> No
> If you answered "yes," name that kind of thing, and give one example of that kind of thing:
> Kind of thing:
> Example:

After answering the questionnaire, participants received a note regarding the previous questionnaire. Participants in the Feedback condition received the following note:

> Clients with the three problems did not in fact differ in the types of responses they gave to the inkblots. That is, there was no one general kind of response more often given by clients with a certain problem than by clients with the other problems. In other words, the correct answer to each of the three questions on the preceding questionnaire was "No." The questionnarie on the following page, to which you should now proceed, is

your final task in this study.

Pariticipants in the Feedback/second-task condition received the following note:

> Client with the three problem did not in fact differ in the types of responses they gave to the inkblots. That is, there was no one general kind of response more often given by clients with a certain problem than by clients with the other problems. In other words, the correct answer to each of the three questions on the preceding questionnaire was "No."
> The questionnaire on the following page asks you to describe how you went about trying to decide whether or not clients with different problems gave certain kinds of responses more often. After you have completed this questionnaire, we will be giving you a second test-interpretation task, similar in some ways to the inkblot-interpretation task you performed at the beginning of this study, but more difficult. This upcoming second task will involve a different set of psychological problems, and will also involve responses to a different clinical test (not the Rorschach). It will also differ from the first task in that for some of the psychological problems, there will be a relationship between the problem and certain kinds of test responses, whereas for other problems, there will not be any such relationship. Your task will be to figure out which relationships are really there and which aren't.
> The point of this experiment is to see whether your performance on the second test-interpretation task is an improvement over your performance on the first one. In other words, will people profit from their experience with the first task and from their attempt to understand why and how they may have gone wrong the first time? Bear this in mind as you answer the questionnaire on the following page, to which you should now proceed.

Participants in the No-feedback condition received the following note:

> The questionnaire on the following page, to which you should now proceed, is your final task in this study.

All participants were then asked to answer the following question:

> How did you go about trying to decide whether or not clients with different problems gave certain kinds of responses more often? In other words, how did you go about trying to answer the questions on Questionnaire 1? Please describe the mental procedure(s) or process(es) you went through in giving your judgments, plus any other factors that may have influenced your judgments. Your answer to this question is a very important part of this study, so please think carefully and try to answer in as much detail as possible. You may spend up to about 10 minutes on this question. When you have finished, please return this questionnaire to its folder and wait quietly until all the participants have finished. Thank you.

Participants then answered a questionnaire which probed for suspiciousness and were debriefed fully. Additional participants were recruited to replace those who did not observe any of the three illusory correlations. Out of 86 participants in total, 23 (26.7%) were replaced for this reason. This procedure was necessary in view of the purpose of the study, which is to examine people's awareness of their faulty mental processes. The test of the hypothesis relies on participants' observation of at least one illusory correlation between type

of response and the type of clinical problem. Therefore, it makes no sense to include those participants who did not observe an illusory correlation.

Observer Study

Design and participants. The experimental design was the same as that for the actor study, with three conditions: No-feedback, Feedback, and Feedback/second-task. Twenty-seven male and thirty-six female introductory psychology students, who participated in partial fulfillment of a course requirement, comprised the final sample. Nine males and twelve females were randomly assigned to each of the three conditions.

Procedure. Observers were given the following information to orient them to their task:

> In a previous study conducted earlier this year, we asked introductory-psychology students to study the responses given by clients in therapy to an assessment instrument known as the Rorschach Inkblot Test. The purpose of the study in which you are now participating will be explained shortly. At this time, however, we would like you to read the introductory instructions given to the participants in the previous study to which we just referred.

Observers then received a detailed description of the actor study, consisting of: (a) initial instructions for the experiment, (b) a description of the inkblot booklet (stating that it contained 48 pages, each with two responses given by a client with one of the three clinical problems, which was listed at the top of the page), and (c) several examples of inkblots and responses. They were also told that actor participants answered a questionnaire after studying the booklet. Each observer then read one same-sex actor's answers to the correlation questionnaire as well as the feedback note received by that actor. The observer was then asked to answer the "introspection" question (the same one given to actors) with the following instructions:

> What we would like you to do is to answer the question on page 7 as you think it was probably answered by the participant in the previous study whose responses to Questionnaire 1 you just read. (Do not refer back to Questionnaire 1). Please phrase your answer in the first person (that is, use the pronoun "I" rather than "he" or "she"), just as if you yourself were that participant writing the answer.

Participants were then debriefed fully.

Additional participants were recruited to replace those who failed to follow instructions or seemed unable to understand the point of their task. Out of 81 participants in

total, 18 (22.2%) were replaced. The different reasons for attrition in this and the actor study, however, make it inappropriate to directly compare the levels of awareness displayed by actors and observers. Presumbly it was the more intelligent actors who correctly observed that there was no correlation between type of response and type of clinical problem, whereas it was the less intelligent observers who failed to comprehend and follow instructions in the observer study. Therefore, we limited our analyses to the effects of feedback within the actor and observer groups, and made no direct statistical comparisons between these two groups.

III. Results

Derived Measures

Verbal reports were rated on five dimensions, which represent three increasing degrees of specificity of influence of schemas on people's covariation judgments. The first two dimensions concern awareness of bias and awareness of the influence of stereotypes. The last dimension has three sub-dimensions, which refer to three more specific ways in which sterotypes can influence judgments: biased attention to or encoding of information, biased retrieval of information, and biased inference. The five dimensions are:

1. Recognition of some form of bias in the judgment process, whether or not the type of bias is specified. ["Bias" here was distinguished from "error"; i.e., mere admission that the judgments or judgment processes were, or may have been, erroneous did not in and of itself count as an occurrence of this idea.]

2. Recognition of the influence of stereotypes, expectations, or preconceptions on the participant's cognitive process, whether or not the exact mode of operation or locus of operation of these stereotypes or expectations is specified. [Note that the response had to at least imply that the stereotypes or expectations biased, or may have biased, the subject's cognitive processes.]

3a. Recognition of the influence of stereotypes, expectations, or preconceptions on attention or encoding. [This category was intended to cover recognition of the biasing influence of the stereotypes or expectations on the subject's cognitive processing during (or before) presentation of the stimulus blots.]

3b. Recognition of the influence of stereotypes, expectations, or preconceptions on retrieval of stimulus information from memory. [This category was intended to cover recognition of the biasing influence of the stereotypes or expectations on the subject's attempt to retrieve or remember information after the presentation of the stimulus blots (including retrieval attempts made at the time of the covariation judgments).]

3c. Recognition of the influence of stereotypes, expectations, or preconceptions on the covariation-judgment process itself, rather than on the encoding or retrieval of items of

information that may have contributed to the cova[riation judgments. [This category was intended to cover recognition of the biasing influe[nce of the stereotypes or expectations on the judgment process per se (e.g., inferences about wh[at "ought" to be true) as opposed to attention- or memory-based effects.]

The researcher screened the verbal reports [for any information suggestive of the condition the participants were in before they were[typed and rated. There were only a few reports which contained such information. Two rat[ters independently rated the degree of emphasis given to each of the above ideas in partic[ipants' answers on a 5-point scale (with 0 labeled "not mentioned or implied at all"; 1, "men[tioned or implied, but not emphasized"; 2, "somewhat emphasized"; 3, "emphasized"; and 4, "highly emphasized"), as well as the explicitness with which the idea was expressed on a [4-point scale (with 1 labeled "not made explicit [implicit only]"; 2, "somewhat explicit"; 3, "explicit"; and 4, "highly explicit"). If the emphasis rating was 0, the explicitness rating was n[ot made (and was treated as 0 in all subsequent analyses). Both raters are psychologists[s who are very familiar with research in the areas of self-awareness and human judgment and [decision-making. [1] Both raters were blind to participants' feedback conditions. In addition, one [rater was also blind to the nature of the feedback manipulation itself.

The emphasis and explicitness ratings were [higly correlated within each of the five dimensions for each rater. The correlations ranged [from .86 to .97. Because the two ratings were so similar to each other, they were combined [and their averages were used in all analyses. The Pearson product-moment correlation[s between the raters for Dimensions 1 to 3C were .84, .85, .82, .69, and .71, respectively. T[he ratings of the two raters were then averaged. The reliabilities of these averaged scores [(intraclass correlations) for the 5 dimensions were .89, .90, .90, .76, and .79, respect[ively.

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[1]The researcher would like to thank the raters[s, Igor Gavanski and Dr. Curt Hoffman, for their help.

Actor Study

Recall that three versions of the inkblot booklet were used in the study. In a series of analyses of variance, booklet version was not involved in any significant main effects or interactions either on the number of illusory correlations seen by participants or on any of the awareness variables (all ps > .05). Therefore, all subsequent analyses were collapsed over the booklet variable.

Participants in the two feedback conditions gave more accurate verbal reports of their mental processes than those in the No-feedback condition. Table 1 shows the mean scores on each of the five rating dimensions. In general, when participants were given feedback, they were more than moderately aware of the existence of bias and of the influence of stereotypes on their covariation judgments. Contrast analyses using the contrast of -2, +1, and +1 for the No-feedback, Feedback, and Feedback/second-task conditions, respectively (the same contrast was used for all subsequent F tests) showed that participants who received feedback were more aware of the existence of bias ($F(1,60) = 8.72$, $p < .01$) and of the influence of stereotypes, expectations, or preconceptions ($F(1,60) = 8.85$, $p < .01$) than were their no-feedback counterparts. Moreover, they also tended to be more aware of biased attention and encoding ($F(1,60) = 3.63$, $p < .10$) and biased retrieval of information ($F(1,60) = 5.65$, $p < .05$).

Several additional scores were also derived from the ratings of participants' verbal reports. Table 2 displays the means of participants' average scores on Dimensions 3A, B, and C. Participants receiving feedback were generally more aware of these specific biases than were participants not receiving feedback ($F(1,60) = 9.56$, $p < .005$). A second way to analyze participants' awareness is to look at the highest rating each of them received for the three specific dimensions. This measure takes into account that different participants could have been biased in different ways and can be used to examine the absolute level of awareness regardless of which of these three specific processes participants were most aware of. As shown in Table 2, in general, participants were quite aware of biased specific mental processes. However, those who received feedback showed more awareness ($F(1,60) = 9.62$, p

< .005). A third way to examine participants' awareness of biased mental processes is to tabulate how many of the three specific biases they mentioned in their reports (i.e., the number of specific dimensions that received ratings greater than or equal to 1). According to this criterion, participants could have a score of either 0, 1, 2, or 3 (Table 2). Participants in the feedback conditions mentioned more biased mental process than participants not receiving feedback ($F(1,60) = 12.34$, $p < .001$).

Another way of analyzing the data is to determine the percentages of subjects in each condition who scored at or above a criterion level of awareness. Tables 3 and 4 show, respectively, the percentages of participants scoring at or above 2 on the two general dimensions, and the percentage of participants scoring at or above 1 on at least one of the more specific dimensions. To test the significance of the obtained pattern, frequencies in the two feedback conditions were combined. More of the participants who received feedback scored above the criterion on the two general dimensions ($X^2(1) = 7.57$ $p < .01$, and $X^2(1) = 5.52$, $p < .02$) than did those who did not receive feedback. More of the feedback participants also scored above the criterion for the specific dimensions ($X^2(1) = 10.11$, $p < .005$).

None of the comparisons between the Feedback and Feedback/second-task conditions was significant.

Observer Study

In contrast to actors, observers who received feedback did not give more accurate reports of mental processes than those who did not receive feedback. Table 5 displays the mean scores on the five dimensions. Relative to participants in the No-feedback condition, those who received feedback did not show more awareness of general bias, of the influence of stereotypes, or of specific biases (all Fs < 1). As Table 6 shows, feedback and no-feedback observers were also quite comparable on the composite measures derived from Dimensions 3A, B, and C (all Fs < 1). Tables 7 and 8 display the percentages of observers receiving ratings of 2 or greater for the two general dimensions and the percentages receiving ratings of 1 or greater on at least one of the three specific dimensions, respectively. These percentages

did not differ as a function of the feedback manipulation either for the two general dimensions (both X^2s = .03) or for the specific dimensions (X^2 = 0).

IV. Discussion

The present study provides strong evidence that feedback indicating that an erroneous judgment has been made helps people to give more accurate verbal reports of their own (biased) mental processes. In this study, actors who received feedback showed more awareness of the mental processes that led to their erroneous covariation judgments than did their no-feedback counterparts. Their relatively higher level of introspective awareness was expressed in several ways. They put more emphasis on and mentioned more explicitly the existence of bias, the influence of preconceptions or stereotypes, and the operation of specific biased processes in their reports.

The study also showed that the beneficial effect of inaccuracy feedback on introspective awareness was applicable only to actors. Observers who received feedback had no advantage over those who were not given feedback in terms of accuracy of verbal reports. Observers who did and did not receive feedback did not differ on any of the measures used in the study. The lack of influence of feedback on observers' verbal reports eliminates one trivializing potential explanation for the findings of this study. It could be argued that the awareness shown in the verbal reports of actors who received feedback resulted from artifacts relating to the feedback manipulation itself and not from accurate introspection of their own mental processess. It is possible that after people receive feedback indicating that they have made an incorrect judgment, they immediately assume that their judgment was subject to some sort of bias. That is, without any direct introspection of their mental processes, people might be able to guess at the mental processes involved in the erroneous judgment. If such were the circumstances that led to accurate verbal reports on the part of the actors receiving feedback, however, then observers who were given feedback should have similarly benefitted. But as the results show, giving observers feedback did not help them to be any more accurate than their no-feedback counterparts. It is, therefore, reasonable to conclude that the accurate verbal reports given by actors who recieved feedback were not an "artifact" of the feedback manipulation.

An unexpected finding of this study was people's overall high level of awareness of their mental processes. Even though, when compared to actors who received feedback, the accuracy of verbal reports of observers and no-feedback actors was relatively low, the level of overall awareness they displayed still was surprisingly high. For example, thirty-eight percent of no-feedback actors showed moderately high awareness of the existence of bias in their judgments and of the influence of stereotypes or preconceptions. Because of the robustness of the illusory correlation phenomenon, many psychologists probably would have expected people not to be aware of its presence, let alone the mental processes that led to it. There are at least two possible explanations for our finding. In the case of actors, some of them may have been aware of the potential errors they could commit, but may have viewed the amount of cognitive effort needed to properly assess covariation as excessive. As a compromise, they may have relied on schemas to help them to assess covariation. That is, people might have risked erroneous judgments in exchange for efficient information-processing. In view of our limited cognitive resources, this could be a functional strategy. Although the use of schemas may result in erroneous judgments, it may also lead to correct answers. In the case of observers, it is possible that when asked to guess at the mental processes involved in the actor's covariation judgments, they may have drawn on their own previous experiences of making judgments similar to those the actor made. Although no direct comparison was made between no-feedback actors and observers, it can be seen from the various tables that the results of the two groups are very close.

There is an important difference between this and most of the previous studies on introspection. Previous studies have operationally defined introspective accuracy as awareness of the relation between one's own overt behaviors (such as ratings of target persons' traits) and some independent variable (such as the targets' membership in a stereotyped group; Hepburn & Locksley, 1983). On the other hand, the present study operationalized introspective accuracy as awareness of the nature of one's own mental processes. The former operational definition allows for objective measurement of behaviors and subsequent calculation of the relation between behaviors and independent variables, especially in a

within-subjects experimental design. For example, the relation between people's ratings of other persons' traits and the group membership of those persons can be objectively derived by calculating the correlation between trait ratings and group membership. A potential problem for the present study is that our definition of awareness is not as unambiguously objective as the former type of definition. It is not possible to measure people's mental processes and verify the accuracy of their verbal reports with complete certainty. There is, however, little if any disagreement that the influence of schemas on encoding, retrieval, and/or inference is somehow responsible for the illusory correlation phenomenon. That is, there is little theoretical debate surrounding the general nature of the mental processes involved in the type of judgment that we studied; furthermore, the rating criteria employed were not tied to any highly specific theoretical account of this type of judgment. The interpretation of the results of this study would be more questionable had we studied a theoretically contentious cognitive process such as the use of consensus, consistency, and distinctiveness information in causal attribution (Kelley, 1972). Given the type of judgment that we did select for this study, the meaningfulness of the results is probably not affected in any major way by the lack of a completely objective definition of introspective accuracy.

Because of our limited cognitive resources, cognitive economy is achieved sometimes at the expense of our awareness of routine processes. Consequently, it may seem as if we have very little access to most of our cognitive processes. When presenting evidence pertaining to people's inaccurate verbal reports on the relations between external stimuli and their own behaviors, Nisbett and Wilson (1977) argue that one of the reasons for our unwarranted confidence in our introspective ability is inadequate feedback on our erroneous judgments, and also that increased availability of disconfirming information would probably change our opinion about our level of introspective accuracy. The present study demonstrates, however, that inaccuracy feedback can help us to exercise our introspective ability. Research on introspection has progressed beyond the study of whether or not we have introspective ability. The focus of future research should probably be on the factors that mediate such ability. The present study is an early effort in this direction.

Table 1

Mean Awareness Scores for Actors

Dimension	Condition		
	No-feedback	Feedback	Feedback/second-task
1 (Existence of bias)	1.40	2.46	2.54
2 (Influence of stereotypes)	1.32	2.45	2.36
3A (Biased encoding)	.69	1.58	1.23
3B (Biased retrieval)	.21	.82	.87
3C (Biased inference)	.39	.50	.67

Table 2

Dimensions 3A, 3B, and 3C: Average Score, Highest Score, and Number of Dimensions ≥ 1 for Actors

	Condition		
Score	No-feedback	Feedback	Feedback/second-task
Average score	.43	.97	.92
Highest score	1.04	2.33	1.87
Number ≥ 1	.43	.95	1.29

Table 3

Percentages of Actors Scoring ≥ 2 on Dimensions 1 and 2

	Condition		
Dimension	No-feedback	Feedback	Feedback/second-task
1 (Existence of bias)	38%	67%	81%
2 (Influence of stereotypes)	38%	67%	71%

Table 4

Percentages of Actors Scoring ≥ 1 on at Least One of Dimensions 3A, 3B, and 3C

Condition		
No-feedback	Feedback	Feedback/second-task
38%	76%	81%

Table 5

Mean Awareness Scores for Observers

Dimension	Condition		
	No-feedback	Feedback	Feedback/second-task
1 (Existence of bias)	1.16	1.26	1.20
2 (Influence of stereotypes)	1.13	1.20	1.19
3A (Biased encoding)	.25	.16	.31
3B (Biased retrieval)	.21	.25	.16
3C (Biased inference)	.49	.38	.45

Table 6

Dimensions 3A, 3B, and 3C: Average Score, Highest Score, and Number of Dimensions ≥ 1 for Observers

	Condition		
Score	No-feedback	Feedback	Feedback/second-task
Average score	.32	.26	.31
Highest score	.86	.75	.86
Number ≥ 1	.38	.33	.48

Table 7

Percentages of Observers Scoring ≥ 2 on Dimensions 1 and 2

	Condition		
Dimension	No-feedback	Feedback	Feedback/second-task
1 (Existence of bias)	38%	33%	38%
2 (Influence of stereotypes)	38%	33%	38%

Table 8

Percentages of Observers Scoring ≥ 1 on at Least One of Dimensions 3A, 3B, and 3C

Condition		
No-feedback	Feedback	Feedback/second-task
38%	33%	43%

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Appendix A

Instructions, Questionnaires, and Feedback Manipulations for Actor Study

Please do not mark these instructions. Thank you.

Instructions

We are studying some of the factors involved in teaching students to understand and interpret clinical test responses. We hope that this research will have useful applications relevant to the design of professional training programs in clinical psychology. One of the tests we are researching is the well-known Rorschach Inkblot Test. In this test, the client is shown a series of ten inkblots and is asked to verbalize what each of the blots looks like. The client is free to focus and base his/her response on either the whole blot or on part of the blot.

Accompanying these instructions is a booklet of inkblots and their corresponding responses, which we have taken and adapted from various textbooks on Rorschach inkblot interpretation. All the responses were given by male clients, each with one of three psychological problems that clinicians frequently encounter in their practice. The three problems are (1) sexual dysfunction (i.e., problems in sexual functioning), (2) suicidal tendencies, and (3) chronic overweight disorder. The booklet contains two of the responses made by each of 48 clients. Each of the clients is identified by a client number and the particular problem he was experiencing. The identifying information is followed by two responses selected randomly from the client's profile, together with the particular inkblots to which the responses were given. In cases where clients responded to part of the blot, rather than to the whole blot, the part to which the client indicated he was responding has been circled. Your first task in this study is to read through the booklet carefully, paying very close attention to the kinds of responses given by clients with each of the three problems. You will be asked questions concerning the responses later on.

To make sure that everyone proceeds at the same pace, a tape-recording of a voice telling you when to turn each page in the booklet will be started after everyone has finished reading these instructions. You will be given 15 seconds to read each page. Blank sheets have been inserted between the pages of the booklet to prevent material on later pages from showing through and distracting your attention.

Instructions for the later task will be given after you have read through the booklet of Rorschach responses. For now, your only task is to study the nature of the clients' responses as carefully as you can, within the time allotted. Please turn these instructions face down when you have finished reading them. Thank you in advance for your help with this project.

Questionnaire 1

1. Was there any general kind of response that was given more often (even slightly more often) by the men suffering from sexual dysfunction than by the men with the other two problems? In other words, did this group of men tend to see any certain kind of thing in the inkblots more frequently than the other two groups?

Yes
No

If you answered "yes," name that kind of thing, and give one example of that kind of thing:

Kind of thing:

Example:

2. Was there any general kind of response that was given more often (even slightly more often) by the men with suicidal tendencies than by the men with the other two problems? In other words, did this group of men tend to see any certain kind of thing in the inkblots more frequently than the other two groups?

Yes
No

If you answered "yes," name that kind of thing, and give one example of that kind of thing:

Kind of thing:

Example:

3. Was there any general kind of response that was given more often (even slightly more often) by the men with chronic overweight disorder than by the men with the other two problems? In other words, did this group of men tend to see any certain kind of thing in the inkblots more frequently than the other two groups?

Yes
No

If you answered "yes," name that kind of thing, and give one example of that kind of thing:

Kind of thing:

Example:

Please proceed to the next folder.

(No-feedback condition)

Note to participants:

The questionnaire on the following page, to which you should now proceed, is your final task in this study.

(Feedback condition)

Note to participants regarding Questionnaire 1[1]:

Clients with the three problems did not in fact differ in the types of responses they gave to the inkblots. That is, there was no one general kind of response more often given by clients with a certain problem than by clients with the other problems. In other words, the correct answer to each of the three questions on the preceding questionnaire was "No." The questionnaire on the following page, to which you should now proceed, is your final task in this study.

(Feedback/second-task condition)

Note to participants regarding Questionnaire 1:

Clients with the three problems did not in fact differ in the types of responses they gave to the inkblots. That is, there was no one general kind of response more often given by clients with a certain problem than by clients with the other problems. In other words, the correct answer to each of the three questions on the preceding questionnaire was "No."

The questionnaire on the following page asks you to describe how you went about trying to decide whether or not clients with different problems gave certain kinds of responses more often. After you have completed this questionnaire, we will be giving you a second test-interpretation task, similar in some ways to the inkblot-interpretation task you performed at the beginning of this study, but more difficult. This upcoming second task will involve a different set of psychological problems, and will also involve responses to a different clinical test (not the Rorschach). It will also differ from the first task in that for some of the psychological problems, there will be a relationship between the problem and certain kinds of test responses, whereas for other problems, there will not be any such relationship. Your task will be to figure out which relationships are really there and which aren't.

The point of this experiment is to see whether your performance on the second test-interpretation task is an improvement over your performance on the first one. In other words, will people profit from their experience with the first task and from their attempt to understand why and how they may have gone wrong the first time? Bear this in mind as you answer the questionnaire on the following page, to which you should now proceed.

Questionnaire 2

How did you go about trying to decide whether or not clients with different problems gave certain kinds of responses more often? In other words, how did you go about trying to answer the questions on Questionnaire 1? Please describe the mental procedure(s) or process(es) you went through in giving your judgments, plus any other factors that may have influenced your judgments. Your answer to this question is a very important part of this study, so please think carefully and try to answer in as much detail as possible. You may spend up to about 10 minutes on this question. When you have finished, please return this questionnaire to its folder and wait quietly until all the participants have finished. Thank you.

Questionnaire 3

1. Was there anything in particular about the experiment that was unclear to you or puzzles you? If yes, please specify your answer.

2. Could you describe in your own words what you think the experiment is about?

3. Did it occur to you that there might be something more to the experiment than explained by the instructions? If yes, please specify your answer.

4. Did you hear anything at all about this study prior to your participation here today? If so, what? Please be frank -- it will not affect your credit or anything.

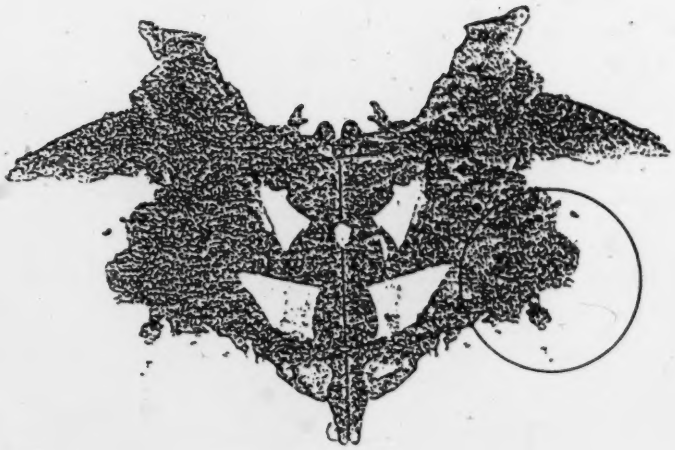
Please indicate your sex: M _____ F _____

Appendix B

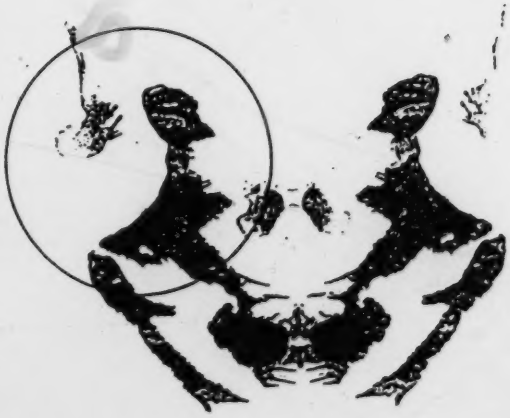
Samples of Rorschach Inkblots and Contrived Responses

"An abstract painting of the theme of death."

"A piece of wall decoration."



"A smashed cookie."



"Reflection in the water of a naked woman."

Appendix C

Instructions, Questionnaires, and Feedback Manipulations for Observer Study

IMPORTANT: Please read these instructions carefully before examining the contents of this booklet. Once you begin, work through the pages of the booklet in exactly the order in which they appear. Do not look back to previous pages after you have moved on, and do not look forward to later pages before you have finished with the preceding pages. It is very important that you follow this procedure exactly. Thank you for your cooperation.

In a previous study conducted earlier this year, we asked introductory-psychology students to study the responses given by clients in therapy to an assessment instrument known as the Rorschach Inkblot Test. The purpose of the study in which you are now participating will be explained shortly. At this time, however, we would like you to read the introductory instructions given to the participants in the previous study to which we just referred. These are the instructions that they received:

We are studying some of the factors involved in teaching students to understand and interpret clinical test responses. We hope that this research will have useful applications relevant to the design of professional training programs in clinical psychology. One of the tests we are researching is the well-known Rorschach Inkblot Test. In this test, the client is shown a series of ten inkblots and is asked to verbalize what each of the blots looks like. The client is free to focus and base his/her response on either the whole blot or on part of the blot.

Accompanying these instructions is a booklet of inkblots and their corresponding responses, which we have taken and adapted from various textbooks on Rorschach inkblot interpretation. All the responses were given by male clients, each with one of three psychological problems that clinicians frequently encounter in their practice. The three problems are (1) sexual dysfunction (i.e., problems in sexual functioning), (2) suicidal tendencies, and (3) chronic overweight disorder. The booklet contains two of the responses made by each of 48 clients. Each of the clients is identified by a client number and the particular problem he was experiencing. The identifying information is followed by two responses selected randomly from the client's profile, together with the particular inkblots to which the responses were given. In cases where clients responded to part of the blot, rather than to the whole blot, the part to which the client indicated he was responding has been circled. Your first task in this study is to read through the booklet carefully, paying very close attention to the kinds of responses given by clients with each of the three problems. You will be asked questions concerning the responses later on.

To make sure that everyone proceeds at the same pace, a tape-recording of a voice telling you when to turn each page in the booklet will be started after everyone has finished reading these instructions. You will be given 15 seconds to read each page.

Please go on to the next page.

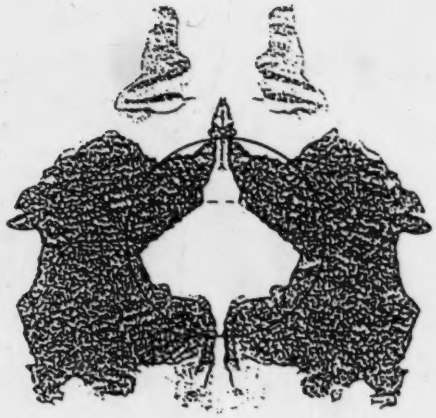
Participants then studied the booklet of Rorschach responses just described. The booklet contained 48 pages, and on each page appeared two responses given by a client with one of the three clinical problems mentioned. Each client's problem was listed at the top of the page.

On this and the following page are some examples of the Rorschach responses that appeared in the booklet. Please examine these responses briefly and then move on to page 4.

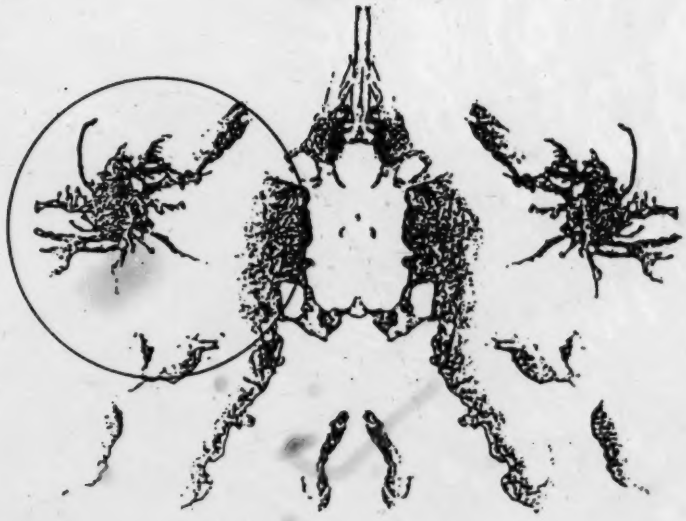
"A close-up of two lips touching."

"A funny-shaped cushion."

3



"The vision of the diminishing light seen by dying people."



"Leftover hors d'oeuvres."

4

After reading through the responses given by all 48 clients, the participants were given a questionnaire asking them about the kinds of responses given by clients with different clinical problems. The following page of this booklet is the questionnaire that they received, as answered by one actual participant in the previous study. Please study this participant's answers carefully and then move on to page 6. Please do not make any marks on the questionnaire.

(No-feedback condition)

6

After completing the preceding questionnaire, the participants then answered the question that appears on the following page of this bonklet (page 7). Please turn to page 7 at this time and read the question, and then turn back to this page and continue reading the instructions below.

(Read the question on page 7)

What we would like you to do is to answer the question on page 7 as you think it was probably answered by the participant in the previous study whose responses to Questionnaire 1 you just read. (Do not refer back to Questionnaire 1). Please phrase your answer in the first person (that is, use the pronoun "I" rather than "he" or "she"), just as if you yourself were that participant writing the answer.

We realize that this may strike you as a rather odd task, but please be assured that it serves a very important purpose in our research. We will explain to you in detail what the point of this task is at the end of today's session. Please spend no more than 10 minutes answering the question, and when you are finished, replace this booklet in its envelope and notify the researcher that you are done. Than you very much.

(Feedback condition)

6

After completing the preceding questionnaire, the participants were then given the following information:

Clients with the three problems did not in fact differ in the types of responses they gave to the inkblots. That is, there was no one general kind of response more often given by clients with a certain problem than by clients with the other problems. In other words, the correct answer to each of the three questions on the preceding questionnaire was "No."

The participants then answered the question that appears on the following page of this booklet (page 7). Please turn to page 7 at this time and read the question, and then turn back to this page and continue reading the instructions below.

(Read the question on page 7)

What we would like you to do is to answer the question on page 7 as you think it was probably answered by the participant in the previous study whose responses to Questionnaire 1 you just read. (Do not refer back to Questionnaire 1). Please phrase your answer in the first person (that is, use the pronoun "I" rather than "he" or "she"), just as if you yourself were that participant writing the answer.

We realize that this may strike you as a rather odd task, but please be assured that it serves a very important purpose in our research. We will explain to you in detail what the point of this task is at the end of today's session. Please spend no more than 10 minutes answering the question, and when you are finished, replace this booklet in its envelope and notify the researcher that you are done. Thank you very much.

(Feedback/second-task condition)

6

After completing the preceding questionnaire, the participants were then given the following information:

Clients with the three problems did not in fact differ in the types of responses they gave to the inkblots. That is, there was no one general kind of response more often given by clients with a certain problem than by clients with the other problems. In other words, the correct answer to each of the three questions on the preceding questionnaire was "No."

The questionnaire on the following page asks you to describe how you went about trying to decide whether or not clients with different problems gave certain kinds of responses more often. After you have completed this questionnaire, we will be giving you a second test-interpretation task, similar in some ways to the inkblot-interpretation task you performed at the beginning of this study, but more difficult. This upcoming second task will involve a different set of psychological problems, and will also involve responses to a different clinical test (not the Rorschach). It will also differ from the first task in that for some of the psychological problems, there will be a relationship between the problem and certain kinds of test responses, whereas for other problems, there will not be any such relationship. Your task will be to figure out which relationships are really there and which aren't.

The point of this experiment is to see whether your performance on the second test-interpretation task is an improvement over your performance on the first one. In other words, will people profit from their experience with the first task and from their attempt to understand why and how they may have gone wrong the first time?

The participants then answered the question that appears on the following page of this booklet (page 7). Please turn to page 7 at this time and read the question, and then turn back to this page and continue reading the instructions below.

(Read the question on page 7)

What we would like you to do is to answer the question on page 7 as you think it was probably answered by the participant in the previous study whose responses to Questionnaire 1 you just read. (Do not refer back to Questionnaire 1). Please phrase your answer in the first person (that is, use the pronoun "I" rather than "he" or "she"), just as if you yourself were that participant writing the answer.

We realize that this may strike you as a rather odd task, but please be assured that it serves a very important purpose in our research. We will explain to you in detail what the point of this task is at the end of today's session. Please spend no more than 10 minutes answering the question, and when you are finished, replace this booklet in its envelope and notify the researcher that you are done. Thank you very much.

7

Questionnaire 2

How did you go about trying to decide whether or not clients with different problems gave certain kinds of responses more often? In other words, how did you go about trying to answer the questions on Questionnaire 1? Please describe the mental procedure(s) or process(es) you went through in giving your judgments, plus any other factors that may have influenced your judgments. Your answer to this question is a very important part of this study, so please think carefully and try to answer in as much detail as possible. You may spend up to about 10 minutes on this question.